

## REMARKS

Claims 16, 26, 29, 42, and 43 have been amended, and claims 16, 18, 20-33, and 36-44 are pending in the present application. The claim amendments are supported by the specification and claims as originally filed, with no new matter being added. Accordingly, favorable reconsideration of the pending claims is respectfully requested.

Claims 16, 18, 26, 32-33, 36, and 41-44 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,066,615 to Brady et al. (hereinafter "*Brady*") in view of U.S. Patent No. 5,552,180 to Finley et al. (hereinafter "*Finley*"). Applicant respectfully traverses.

Independent claims 16, 42, and 43 have been amended to recite that the metal in the metal silicon nitride compound is at least one metal selected from the group of scandium and cobalt. There is no teaching or suggestion in *Brady* or *Finley* of an antireflective coating comprising a metal silicon nitride compound, with the metal selected from this group. Thus, claims 16, 42, and 43 would not have been obvious over *Brady* in view of *Finley*.

Claims 18 and 44 depend from claims 16 and 43 respectively, and thus include the limitations thereof. Therefore, claims 18 and 44 would also not have been obvious over *Brady* in view of *Finley* for at least the reasons stated with respect to claims 16 and 43.

Independent Claim 26 recites that M is at least two transition metals  $M_1, M_2$ , and that M1 and M2 are selected from the group of Sc, Zr, Nb, Ta, Mo, Co, Al, and Ni. There is no teaching or suggestion in *Brady* or *Finley* of the antireflective coating as recited in claim 26. While *Finley* teaches various metals that can be alloyed with silicon, the only two-metal combination that is disclosed for alloying with silicon is nickel-chromium (see Col. 3, lines 29-

30, claims 5, 16, and 20 of *Finley*), which is not included in the group recited in claim 26. Thus, claim 26 would not have been obvious over *Brady* in view of *Finley*.

With respect to independent claim 32 and dependent claims 33 and 36, there is no teaching or suggestion in *Brady* or *Finley* of the recited antireflective coating comprising a metal silicide compound, with the metal being at least one metal selected from the group of Sc, Co, Al, and Ni. Applicant notes that *Finley* does not disclose any silicide compounds. Hence, claims 32, 33, and 36 would not have been obvious over *Brady* in view of *Finley*.

Independent claim 41 recites that the metal silicon nitride compound is selected from the group of tungsten aluminum silicon nitride, and titanium aluminum silicon nitride. Such compounds are not taught or suggested in *Brady* or *Finley*. As discussed above, while *Finley* teaches various metals that can be alloyed with silicon, the only two-metal combination that is disclosed for alloying with silicon is nickel-chromium. Thus, claim 41 would not have been obvious over *Brady* in view of *Finley*.

Accordingly, Applicant respectfully requests that the rejection of claims 16, 18, 26, 32-33, 36, and 41-44 under 35 U.S.C. § 103(a) be withdrawn.

Claims 20-25, 27-31, and 37-40 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Brady* in view of U.S. Patent No. 5,886,391 to Niroomand et al. (hereinafter "*Niroomand*"). Applicant respectfully traverses.

Claims 20-25 depend from claim 16 and thus include the limitations thereof. As discussed above with respect to claim 16, there is no teaching or suggestion in *Brady* of an antireflective coating comprising a metal silicon nitride compound, with the metal selected from the group scandium and cobalt. *Niroomand* also does not teach or suggest such a limitation. Accordingly, claims 20-25 would not have been obvious over the cited references.

Claims 27-28 depend from claim 26 and thus include the limitations thereof. As discussed above with respect to claim 26, there is no teaching or suggestion in *Brady* of an antireflective coating as recited in claim 26, with M being at least two transition metals selected from the group of Sc, Zr, Nb, Ta, Mo, Co, Al, and Ni. *Niroomand* also does not teach or suggest these claimed features. Accordingly, claims 27-28 would not have been obvious over the cited references.

Independent claim 29 has been amended to recite that the metal in the metal silicon nitride compound is at least one metal selected from the group of scandium and cobalt. There is no teaching or suggestion in *Brady* of an antireflective coating comprising a metal silicon nitride compound, with the metal selected from this group. *Niroomand* also does not teach or suggest such a limitation. Accordingly, claim 29 would not have been obvious over the cited references.

Claims 30-31 depend from claim 29 and thus include the limitations thereof. Therefore, claims 30-31 would also not have been obvious over the cited references for at least the reasons stated hereinabove with respect to claim 29.

Claims 37-40 depend from claim 32 and thus include the limitations thereof. As discussed above with respect to claim 32, there is no teaching or suggestion in *Brady* of an antireflective coating comprising a metal silicide compound, with the metal being at least one metal selected from the group of Sc, Co, Al, and Ni. Likewise, *Niroomand* also does not teach or suggest an antireflective coating comprising such a metal silicide compound. Accordingly, claims 37-40 would not have been obvious over the cited references.

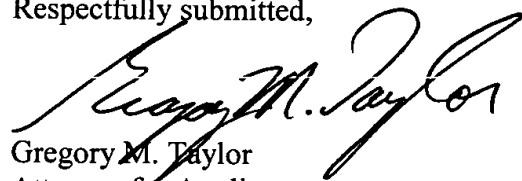
For the above reasons, Applicant respectfully requests that the rejection of claims 20-25, 27-31, and 37-40 under 35 U.S.C. § 103(a) be withdrawn.

### CONCLUSION

In view of the foregoing, Applicant respectfully requests favorable reconsideration and allowance of the pending claims. In the event the Examiner finds any impediment to the prompt allowance of this application that could be clarified by a telephone interview, the Examiner is respectfully requested to contact the undersigned attorney.

Dated this 23<sup>rd</sup> day of July 2003.

Respectfully submitted,



Gregory M. Taylor  
Attorney for Applicant  
Registration No. 34,263

WORKMAN NYDEGGER  
1000 Eagle Gate Tower  
60 East South Temple  
Salt Lake City, Utah 84111  
Telephone: (801) 533-9800  
Facsimile: (801) 328-1707

G:\DATA\WPDOCS\VFW\GMT\116751301.resp.doc

VERSION WITH MARKINGS TO SHOW THE CHANGES MADE

IN THE CLAIMS:

Claims 16, 26, 29, 42, and 43 have been amended as follows:

16. (Four Times Amended) A semiconductor structure comprising:

a semiconductor substrate; and

an antireflective coating over the semiconductor substrate, the antireflective coating comprising a metal silicon nitride compound, the metal being at least one metal selected from the group consisting of scandium, and cobalt [Sc, Co, and Ni], wherein the antireflective coating is configured to minimize reflectivity of deep ultraviolet light.

26. (Four Times Amended) A semiconductor structure comprising:

a semiconductor substrate; and

an antireflective coating upon said semiconductor substrate, the antireflective coating comprising a metal silicon nitride compound  $M_xSi_yN_z$ , wherein:

x is greater than zero;

y is greater than x;

z is greater than zero and less than about 5y;

M is at least two transition metals  $M_1M_{2(1-r)}$ ;

r is in a range [from] between 0 [to] and 1;

M1 and M2 are selected from the group consisting of Sc, Zr, Nb, Ta, Mo, Co, Al, and Ni; and

M1 is not M2.

29. (Four Times Amended) A semiconductor structure comprising:

an electrically insulative layer upon a semiconductor substrate;

a patterned electrically conductive metal line upon the electrically insulative layer; and

an antireflective coating upon said electrically conductive metal line, wherein the antireflective coating is configured to minimize reflectivity of deep ultraviolet light, the antireflective coating comprising a metal silicon nitride compound  $M_xSi_yN_z$ , wherein:

x is greater than zero;

M is at least one transition metal selected from the group consisting of scandium, and cobalt [Sc, Co, and Ni];

y is greater than x; and

z is greater than about 0 and less than about 5y.

42. (Twice Amended) A semiconductor structure comprising:  
a semiconductor substrate; and  
an antireflective coating over the semiconductor substrate, the antireflective coating comprising a metal silicon nitride compound, wherein the metal is at least one metal selected from the group consisting of scandium, and cobalt [Sc, Co, and Ni].

43. (Thrice Amended) A semiconductor structure comprising:  
a semiconductor substrate; and  
an antireflective coating over the semiconductor substrate and having a thickness range from about 25 Angstroms to about 200 Angstroms, the antireflective coating comprising a metal silicon nitride compound, wherein the metal is at least one metal selected from the group consisting of scandium, and cobalt [Sc, Co, and Ni].